REMARKS

These remarks are made in response to the Office Action dated July 1, 2003. In the Office Action, the Examiner maintained rejection of claims 1, 6-11, 14-15 and 18-30 under 35 U.S.C. § 102(b) as being anticipated by Payton, U.S. Patent No. 5,790,935 (hereinafter *Payton*). Claims 2-5, 12, 13, 16, and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Payton* in view of Payne *et al.*, U.S. Patent No. 6,021,433 (hereinafter *Payne*). .

No claim amendments are made in this response. Claims 1-7, 9-19, 21-23, and 25-30 remain pending in the application. For the reasons set forth below, the Applicants respectfully request reconsideration and allowance of all pending claims.

Argument in Support of Allowance of the Independent Claims

In general, the present invention concerns a broadcast system, method and apparatus for providing content on demand. In one embodiment, the broadcast system includes a server that broadcasts meta-data to a plurality of clients. The meta-data describes a plurality of data files (*i.e.*, content) that are to be broadcast (or at least potentially broadcast) later by the server by identifying attributes of each data file. Each client receives the broadcasted meta-data from the server and updates and maintains a local meta-data table and a content rating table. Based on the attributes in the meta-data in combination with attribute rating data derived from previous access habits of the user (of a client system) and optional user classifications, the client system generates ratings for the to be broadcast data files selectively receives and/or stores data files that are later broadcast by the server based on the ratings that are generated at the client system for those data files.

In general, claims 1, 11, and 15 pertain to client-side operations of the broadcast system, while claims 7, 19, and 23 cover server-side operations. Claim 27 concerns operation of the entire system.

With respect to Previously Presented independent claim 1, this claim recites:

1. A method, comprising:

receiving meta-data broadcast by a server system at a client system, the meta-data including attributes describing the content of respective data files from among a plurality of data files to be broadcast later by the server system;

generating ratings for each of the plurality of data files via the client system based on existing attribute rating data stored by the client system and common attributes contained in the meta-data for that data file;

selecting, via the client system one or more of the plurality of data files described by the meta-data to store based on the ratings generated for the plurality of data files; and

selectively storing, via the client system, the selected one or more of the plurality of data files in response to a later broadcast of those data files by the server system. (Emphasis added).

In the present Office Action, the Examiner states that the arguments made in the April 21, 2003 response in support of allowance of the Previously Presented claims were not deemed persuasive. In particular, reference is made to the foregoing bold italicized paragraphs. The Examiner asserts that *Payton* "clearly shows that individual users make their own rating and also the local se[r]ver 28 serves as a smart VCR by monitoring a subscriber's view[ing] habits and stores regularly watched programs fro the viewer." In particular, the examiner refers to Col. 6, lines 29-50 (actually 33-50), which states,

> By recommending the locally stored items to the subscriber and making them easy to select, the delivery system 22 reduces the probability that an on-demand request will be made from the central distribution server 24. After using the requested item, the subscriber interface 58 preferably prompts the subscriber to enter a rating. This can be as simple as pushing a number on a scale from 1 to 10 or may additionally include entering comments about the item. Alternately, the

system could just record the use of the item as a positive vote. This is somewhat simpler but does not provide nearly as much useful information on which to base future predictions. As an additional feature, the local server 28 can serve as a smart VCR by monitoring a subscriber's viewing habits for non-paying programs and by storing regularly watched programs if the viewer happens to be missing them. This information about regular viewing habits can be used to augment the subscriber profile to improve prediction.

The Applicant acknowledges that *Payton* discusses subscriber entry of ratings, as stated above. However, the first bolded and italicized subparagraph above is specific about the ratings being generated "based on existing attribute rating data stored by the client system and common attributes contained in the meta-data for that data file." This is clearly not taught or suggested by the foregoing paragraph.

First, as discussed previously, *Payton* does not disclose a client system that receives meta-data broadcast by a server system that includes attributes describing the content of respective data files from among a plurality of data files to be broadcast later by the server system. The Examiners contention that "the digital items selected and rated by the subscribers inherently include attributes such [as] the movie type, actor names, and so on" does not read on the elements in the claim language of claim 1, since 1) there is no meta-data (or any type of data, whatsoever) corresponding to content that is to be broadcast later by central distribution server 24 that is received at local server 28 (from a broadcast by central distribution server 24); and 2) the only digital items that are rated by a subscriber corresponds to content that has already been viewed by the subscriber, and thus was already stored on the local server 28 used by the subscriber in response to a previous broadcast by central distribution server 24.

In contrast, the data files that are being rated under claims 1, 11, and 15 correspond to data files that are to be broadcast, and clearly are not currently present on the client system. These ratings are generated based on existing attribute rating data stored on the client system, wherein common attributes contained in the meta-data

for the to be broadcast files and the rating data stored by the client system are used to generate the ratings.

It is clear from above that ratings for the data files, which have yet to be broadcast, are not generated at the client system under *Payton*. Nor is such as scheme suggested by *Payton*, and is, in fact, taught away by *Payton*. As discussed in the background and summary of the invention sections, *Payton*'s system is targeted toward delivering "virtual" on demand digital information in a manner that maximizes network bandwidth over an extended period by performing a bulk of the broadcasting during off-peak hours. This is facilitated by "predicting" what content (*e.g.*, programming, movies, *etc.*) each subscriber may desire to view, and storing that content on each subscriber's local server, wherein the content is broadcast throughout the day (especially including the off-peak hours). The predicted content is aggregated across all users at the central distribution server to determine when and what content should be broadcasted. Ideally, content each subscriber would like to view will be stored on the local server during non-peak periods, leaving any unmet subscriber demands for content that isn't already on their respective local servers to be met via on-demand requests made during the peak periods. This is summarized in the following paragraph:

> By predicting which items each subscriber is likely to request, storing them locally, and then recommending those items to the subscriber, the system reduces the number of subscriber requests that must be provided on-demand from the central distribution server. This offloading of required bandwidth from the central distribution server to the local servers allows the existing transport systems, as well as the next generation systems, to support virtual on-demand service. (Col. 3, lines 33-42).

The objective of such a system is to provide the best overall prediction of subscriber demand, rather than providing the best prediction on an individual subscriber basis. In fact, the individual subscriber demand predictions can be far from perfect, since it is expected that a certain amount of non-predicted content (*i.e.*, content that is

not stored on a subscribers local server) will be requested during peak hours for on-demand viewing. In fact, the demand predictions are determined based on similarity groups to which each subscriber is assigned, rather than individual subscribers (see col. 8, lines 59-68 and col. 9, lines 1-60, generally). More particularly, *Payton* states,

> The performance of these collaborative filtering systems improves as the number of subscribers increases relative to the number of available items. The chance of finding several subscribers who have similar tastes as any particular subscriber increases as the number of subscribers increases. Furthermore, the prediction accuracy will increase as the total number of selections rated by each subscriber increases. To improve start up performance, each subscriber should rate a common selection of items to place him or her among other subscribers with roughly similar tastes. As the subscriber requests and rates items, the subscriber's profile will more accurately reflect his or her preferences and will track changes in those preferences.

In contrast, under the present invention, it is desired to accurately predict viewer content demand on an individual user basis. This is why the ratings of the data files (to be broadcast) for each client system (used by one or more users) are determined based on attribute ratings data already stored on that client system in combination with common attributes contained in the meta-data for the to be broadcast content, wherein the rating are indicative of content desired by the user(s) of a particular client system based on a similarity between attributes of the to be broadcast data files and like attributes of content the client system user(s) have given higher rating for, with no consideration of the ratings stored on other clients systems.

With respect to the assertion that Payton teaches a "smart" VCR, the applicant respectfully asserts that any functionality corresponding to a "smart" VCR has nothing to do with rating of data files. In particular, Col. 8, lines 37-49 detail the operation of the "smart" VCR,

> The prediction filter also monitors the broadcast television programs viewed by the subscriber and learns the subscriber's regular viewing habits to implement a "smart" VCR. Well known neural network algorithms can be used to learn the subscriber's viewing habits and to predict which programs are regularly viewed. If the received item is a broadcast television signal it will not be on the subscriber's recommended

list (step 136). In step 144, the filter determines whether the smart VCR is enabled and whether the item is on the subscriber's regular viewing list. If so, the filter deletes the lowest priority item (step 140) and routes it to the local storage (step 130).

It is evident that the "smart" VCR functionality provided by the local server 28 pertains to recognizing regularly broadcast content (e.g., a television show broadcast daily or once a week) that the subscriber views on a regular basis. This involves no rating of data files based on attributes of those data files.

It is clear all of the elements of claim 1 are not taught or suggested by *Payton*. Furthermore, the application respectfully asserts that these elements are not taught or suggested by any of the art of record, or known to the applicant, either alone or in combination. Accordingly, amended claim 1 is in condition for allowance, as well as each of claims 2-6, which are dependent thereon.

Independent claims 11 and 15 respectfully recite an apparatus and machine instructions for performing the method of amended claim 1. Accordingly, each of claims 11 and 15 are now in condition for allowance for similar reasons presented above in support of the allowance of claim 1.

Claims 7, 19, and 23 respectfully recite a method, apparatus and machine instructions corresponding to server-side operations of the broadcast system. In addition, each of claims 7, 19, and 23 were Previously Presented to further limitations previously contained in respective claims 8, 20, and 24 (as originally filed). In particular, the operations in each of these claims substantially include:

broadcasting meta-data to one or more client systems, ***the meta-data including attribute data describing the content of respective data files*** from among a plurality of data files ***to be broadcast later by the server system***; and

broadcasting a meta-data broadcast schedule prior to broadcasting the meta-data, the meta-data broadcast schedule to indicate a time when the meta-data is to be subsequently broadcast.

The Applicant respectfully asserts that the cited art does not teach or suggest, alone or in combination, the elements of broadcasting meta-data including ***attribute data describing the content of respective data files to be broadcast later by the server system***. Furthermore, the cited art does not teach or suggest broadcasting a schedule of when the meta data are broadcast, as recited by the phrase . ***broadcasting a meta-data broadcast schedule.***

With respect to the rejection of originally-filed claims 8, 20, and 24 (the subject matter of which is now incorporated into independent claims 7, 19, and 23, respectively), the Examiner states, "*Payton* teaches the invention comprising broadcasting a meta-data broadcast schedule prior to broadcasting the meta-data, the meta data broadcast schedule to indicate a time when the meta-data is to be broadcast later [Col. 4, lines 23-44 and Col. 5, lines 22-67]." The applicant respectfully disagrees with this statement in respect to both the meta-data and the meta-data broadcast schedule.

The first cited portion of text (Col. 4, lines 23-44) discusses *Payton*'s broadcasting system in general. The second cited portion of text (Col. 5, lines 22-67) discusses how digital "items" 36 (*i.e.*, the content that is broadcast, such as movies, software, games, music, *etc.*) are scheduled for broadcasting, and how those items are delivered. The first paragraph of these three paragraphs states:

> A scheduling processor 46 merges **the lists 44 of recommended items to prioritize the items 36 from the most to the least frequently recommended** and **places *identifiers for these items in a refresh queue 47* for broadcast over the digital transport system 26. <u>When the recommended items reach the top of the refresh queue 47, they are retrieved from repository 34 and are broadcast to the local users</u>**, preferably during off-peak viewing hours so that all of the system's bandwidth is available to service on-demand requests during on-peak hours. In response to a subscriber's on-demand request that cannot be served by that subscriber's local server 28, the scheduling processor 46 merges requests for that item and places it in an on-demand 49 queue. Items broadcast in response to subscriber requests take priority over the broadcast of the recommended items. As a result, the subscribers' on-

demand requests are served either from their local server or from the central distribution server 24 virtually on-demand . . . (Emphasis added)

The central distribution server 24 broadcasts two things: the digital items 36 and the lists 44 of broadcast item recommended for each subscriber. In some instances, the lists 44 are sent to the subscribers via back channel 30 rather than broadcasting them (see Col. 6, lines 51-59). The identifiers for the items that are broadcast are not broadcast themselves, but rather are placeholders identifying which items are to be broadcast in what order, based on available bandwidth for digital transport system 26. At no point in time does the central distribution server broadcast meta-data including attribute data describing the content of respective data files (digital items) to be broadcast. Furthermore, there is no broadcasting of a schedule identifying when such a meta-data broadcast is to occur.

With respect to the issue of broadcast scheduling, the Examiner contends that *Payton* teaches three types of schedules: off-peak scheduling, on demand scheduling, and continuous operation. In particular, reference is made by the Examiner to Col. 6, lines 59-67 and Col. 7, lines 1-60, which pertain to the flowcharts of FIGS. 3a, 3b, and 3c. None of these schedules pertain to a schedule of a meta-data broadcast. The meta-data broadcast is used by the present invention to let client systems know when to listen (*i.e.*, tune in to receive) meta-data that are periodically broadcast by the server system. Off-peak scheduling concerns when content (*i.e.*, full data files, not meta-data describing attributes of the content) is scheduled to be broadcast during off-peak periods. On-demand scheduling pertains to scheduling content to be broadcast to a local server based on an on-demand request for content that isn't already stored on that local server. In essence, on-demand scheduling is a type of near "real-time" scheduling, in that it attempts to meet the real-time on-demand viewing request for the subscribers. It is unclear to the applicant what continuous operation has to do with meta-data broadcast schedules.

Clearly, *Payton* does not teach or suggest broadcasting meta-data describing attributes of data files to be broadcast or broadcasting a schedule of when the meta-data are to be broadcast. It is thus clear that *Payton* does not teach or suggest all of the elements recited in each of amended independent claims 7, 19, and 23. Accordingly, each of these claims is patentable of *Payton*. Additionally, each of the claims dependent on independent claims 7, 19, and 23 are in condition for allowance for at least the same reasons.

Independent claim 27 concerns a broadcast system corresponding to an embodiment of the present invention, including both server-side and client-side operations. By definition, if either of the server-side or client-side operations are patentable by themselves, then the combination of these operations with the operations of the other system components are patentable for at least the same reasons, since the latter adds further limitations to the patentable subject matter. Accordingly, the applicant respectfully asserts that amended independent claim 27 is patentable over the cited art for at least the same reasons as those discussed above with respect to the independent claims covering the server-side and client-side operations.

Conclusion

Overall, none of the references singly or in any motivated combination disclose, teach, or suggest what is recited in the independent claims. Thus, the applicant respectfully asserts that each of independent claims 1, 7, 11, 15, 19, 23, and 27 are in condition for allowance. The dependent claims that depend directly or indirectly on these independent claims are likewise allowable based on at least the same reasons and based on the recitations contained in each dependent claim.

If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 292-8600.

Charge Deposit Account

Please charge our Deposit Account No. 02-2666 for any additional fee(s) that may be due in this matter, and please credit the same deposit account for any overpayment.

Respectfully submitted,

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